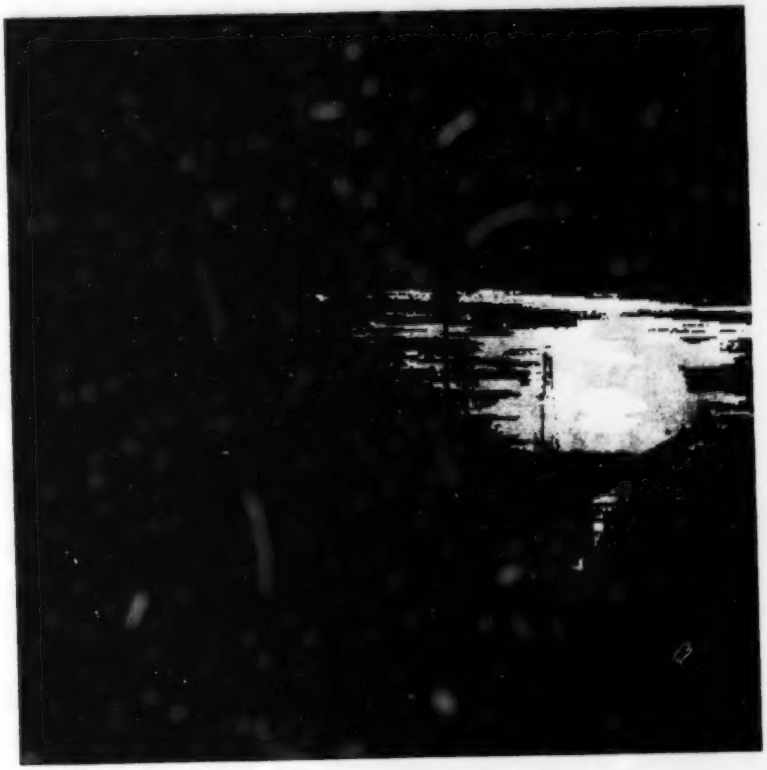
# OCCUPATIONAL INJURY AND DISEASE IN ALBERTA

## Well Servicing with Service Rigs 1994 to 1998



Upstream
Oil and Gas

Subsector #3

Alberta
HUMAN RESOURCES
AND EMPLOYMENT

**July 1999**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# 1. Sub-Sector Description

## Sub-Sector # 3 : Well Servicing With Service Rigs Including Power Swivels

***Well Servicing by means of service rigs including power swivels (Industry # 09903)***

This industry is used to cover oil and gas well servicing operations which are conducted with the use of well servicing rigs. Service rigs can be used on well completions once drilling operations have been completed to bring a producing well on stream as well as work over service to existing oil and gas wells. This industry is also used to cover the operation of power swivels used to replace working components of service rigs and work over units.

Service rigs are smaller and more mobile than drilling rigs, (smaller to a large mobile crane) and usually truck mounted. A service rig operator, derrick hand and two floor hands usually make up a service rig crew. Most service rig operators will have shop operations for structural and mechanical repair on their rigs.

Power Swivels are hydraulic motor driven pipe rotating machines specifically intended to replace the drilling swivels, the kelly stem, the kelly bushing and the rotary table on service rigs and work over units. They are trailer mounted and completely portable. Power swivel can be used to provide rotary power for the internal cutting of casing, drill pipe and tubing for drilling out packers, plugs, cement and other obstructions, for milling and scraping, drilling short distances, coring and as a utility tool in fishing operations.

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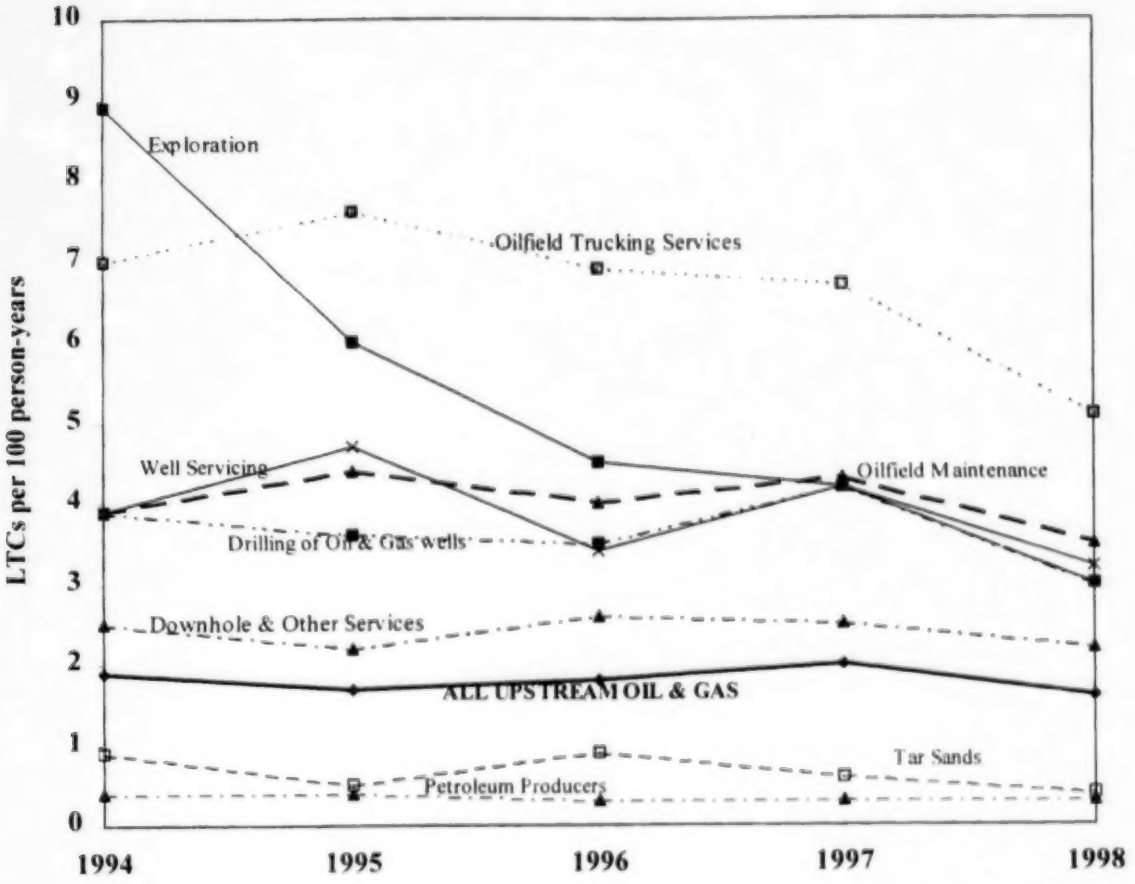
2.

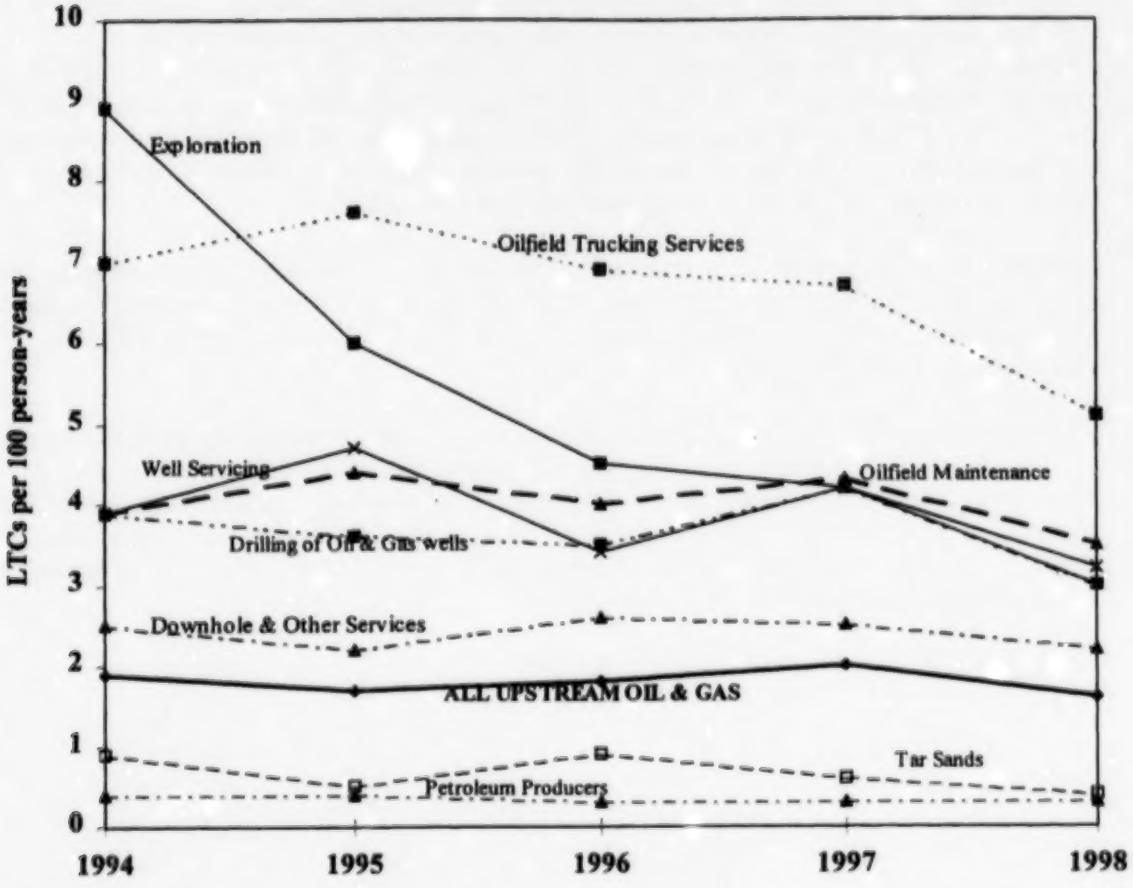
## Lost-Time Claim Rates
## All Upstream Oil & Gas Subsectors
## Alberta 1994-1998




| Lost-Time Claim Rate | 1994 | 1995 | 1996 | 1997 | 1998 |
|---|---|---|---|---|---|
| All Upstream Oil and Gas | 1.9 | 1.7 | 1.8 | 2.0 | 1.6 |
| Exploration | 8.9 | 6.0 | 4.5 | 4.2 | 3.0 |
| Oilfield Maintenance and Construction | 3.9 | 4.4 | 4.0 | 4.3 | 3.5 |
| Well Services with Service Rigs | 3.9 | 4.7 | 3.4 | 4.2 | 3.2 |
| Drilling of Oil and Gas | 3.9 | 3.6 | 3.5 | 4.2 | 3.0 |
| Downhole & Other Oilfield Services | 2.5 | 2.2 | 2.6 | 2.5 | 2.2 |
| Tar Sands | 0.9 | 0.5 | 0.9 | 0.6 | 0.4 |
| Petroleum Producers | 0.4 | 0.4 | 0.3 | 0.3 | 0.3 |
| Oilfield Trucking Services | 7.0 | 7.6 | 6.9 | 6.7 | 5.1 |

2.

## Lost-Time Claim Rates
## All Upstream Oil & Gas Subsectors
## Alberta 1994-1998




| Lost-Time Claim Rate | 1994 | 1995 | 1996 | 1997 | 1998 |
|---|---|---|---|---|---|
| Exploration | 8.9 | 6.0 | 4.5 | 4.2 | 3.0 |
| Oilfield Maintenance and Construction | 3.9 | 4.4 | 4.0 | 4.3 | 3.5 |
| Well Services with Service Rigs | 3.9 | 4.7 | 3.4 | 4.2 | 3.2 |
| Drilling of Oil and Gas | 3.9 | 3.6 | 3.5 | 4.2 | 3.0 |
| Downhole & Other Oilfield Services | 2.5 | 2.2 | 2.6 | 2.5 | 2.2 |
| Tar Sands | 0.9 | 0.5 | 0.9 | 0.6 | 0.4 |
| Petroleum Producers | 0.4 | 0.4 | 0.3 | 0.3 | 0.3 |
| Oilfield Trucking Services | 7.0 | 7.6 | 6.9 | 6.7 | 5.1 |

# 3. LTC Rates & Duration Rates

**Well Servicing With Service Rigs**

| Year | # of Accounts | Cost | Person Years | Days Lost | Duration Rate | LTCs | LTC Rate |
|---|---|---|---|---|---|---|---|
| 94 | 101 | $1,059,491 | 3,575 | 9,362 | 262 | 139 | 3.9 |
| 95 | 113 | $2,784,272 | 3,543 | 8,137 | 230 | 166 | 4.7 |
| 96 | 116 | $1,418,965 | 4,293 | 8,832 | 206 | 146 | 3.4 |
| 97 | 125 | $1,543,160 | 5,055 | 10,254 | 203 | 211 | 4.2 |
| 98 | 112 | $1,991,375 | 4,886 | 9,264 | 190 | 158 | 3.2 |

## 3.1 LTC Rates by Size of Employer:1998

| Size of Employer | # of Accounts | LTCs | Person - Years | LTC Rate |
|---|---|---|---|---|
| A: 0< PYs <=1 | 28 | N/A | 12 | N/A |
| B: 1 < PYs < 5 | 17 | 5 | 52 | 9.7 |
| C: 5 <= PYs < 10 | 14 | 5 | 98 | 5.1 |
| D: 10 <= PYs < 20 | 15 | 17 | 209 | 8.1 |
| E: 20 <= PYs < 40 | 7 | 3 | 190 | 1.6 |
| F: 40 <= PYs < 100 | 11 | 21 | 792 | 2.7 |
| G: PYs >=100 | 13 | 106 | 3,534 | 3.0 |
| H: Invalid | 7 | 1 | 0 | N/A |
| Total | 112 | 158 | 4,886 | 3.2 |

# 4. Analysis of The Lost-Time Claims

## 4.1 Nature of Injury

| LOST-TIME CLAIMS ALBERTA: 1994 TO 1998 | OCCURRENCE YEAR | | | | | Total | |
|---|---|---|---|---|---|---|---|
| | 94 | 95 | 96 | 97 | 98 | Number | Percent |
| SPRAIN, STRAIN | 43 | 46 | 36 | 52 | 56 | 233 | 28.4 |
| FRACTURE & DISLOCATION | | | | | | | |
| FRACTURE | 42 | 25 | 35 | 46 | 30 | 178 | 21.7 |
| OTHER NATURE | . | 2 | 4 | 3 | 5 | 14 | 1.7 |
| SUBTOTAL | 42 | 27 | 39 | 49 | 35 | 192 | 23.4 |
| BRUISE,CONTUSION,CRUSHING | 23 | 33 | 21 | 33 | 9 | 119 | 14.5 |
| OTHER INJURY | | | | | | | |
| AMPUTATION,ENUCLEATION | 4 | . | 2 | 7 | 6 | 19 | 2.3 |
| OTHER NATURE | 2 | 6 | 9 | 22 | 16 | 55 | 6.7 |
| SUBTOTAL | 6 | 6 | 11 | 29 | 22 | 74 | 9.0 |
| CUT, LACERATION, PUNCTURE | 4 | 15 | 4 | 17 | 8 | 48 | 5.9 |
| OTHER DISEASE | 2 | 6 | 11 | 10 | 6 | 35 | 4.3 |
| BURN, SCALD-THERMAL | 5 | 3 | 7 | 5 | 5 | 25 | 3.0 |
| MULTIPLE INJURIES | 5 | 12 | 1 | 3 | 3 | 24 | 2.9 |
| ALL OTHER NATURES, UNS | 9 | 18 | 16 | 13 | 14 | 70 | 8.5 |
| Total | 139 | 166 | 146 | 211 | 158 | 820 | 100.0 |

## 4.2 Part of Body Affected

| LOST-TIME CLAIMS ALBERTA: 1994 TO 1998 | OCCURRENCE YEAR | | | | | Total | |
|---|---|---|---|---|---|---|---|
| | 94 | 95 | 96 | 97 | 98 | Number | Percent |
| BACK | | | | | | | |
| LUMBAR (LOWER BACK) | 13 | 24 | 9 | 5 | 3 | 54 | 6.6 |
| OTHER PART | 13 | 10 | 27 | 36 | 24 | 110 | 13.4 |
| SUBTOTAL | 26 | 34 | 36 | 41 | 27 | 164 | 20.0 |
| FINGER(S) | 24 | 27 | 18 | 30 | 27 | 126 | 15.4 |
| OTHER TRUNK | | | | | | | |
| SHOULDER(S) | 7 | 7 | 7 | 14 | 7 | 42 | 5.1 |
| CHEST-INCLUDES INTERNAL ORGANS | 10 | 2 | 2 | 6 | 2 | 22 | 2.7 |
| HIP(S)-INCUDES PELVIC ORGANS | 2 | 4 | 3 | 5 | 3 | 17 | 2.1 |
| OTHER PART | 1 | 2 | 2 | 2 | 2 | 9 | 1.1 |
| SUBTOTAL | 20 | 15 | 14 | 27 | 14 | 90 | 11.0 |
| LEG(S) | | | | | | | |
| KNEE | 12 | 8 | 5 | 13 | 10 | 48 | 5.9 |
| OTHER PART | 8 | 7 | 8 | 6 | 6 | 35 | 4.3 |
| SUBTOTAL | 20 | 15 | 13 | 19 | 16 | 83 | 10.1 |
| WRIST(S) & HAND(S)-NOT FINGERS | | | | | | | |
| WRIST(S) | 6 | 9 | 8 | 10 | 10 | 43 | 5.2 |
| HAND(S)-NOT WRISTS OR FINGERS | 5 | 9 | 4 | 6 | 6 | 30 | 3.7 |
| SUBTOTAL | 11 | 18 | 12 | 16 | 16 | 73 | 8.9 |
| ANKLE(S) & FOOT(FEET)-NOT TOES | | | | | | | |
| ANKLE(S) | 9 | 3 | 6 | 8 | 9 | 35 | 4.3 |
| FOOT(FEET)-NOT ANKLES OR TOES | 4 | 5 | 7 | 7 | 6 | 29 | 3.5 |
| SUBTOTAL | 13 | 8 | 13 | 15 | 15 | 64 | 7.8 |

(CONTINUED)

## Part of Body Affected (continued)

| LOST-TIME CLAIMS ALBERTA: 1994 TO 1998 | OCCURRENCE YEAR | | | | | Total | |
|---|---|---|---|---|---|---|---|
| | 94 | 95 | 96 | 97 | 98 | Number | Percent |
| OTHER HEAD, NECK | | | | | | | |
| NECK | | 5 | 3 | 5 | 4 | 17 | 2.1 |
| OTHER PART | 4 | 10 | 8 | 15 | 9 | 46 | 5.6 |
| SUBTOTAL | 4 | 15 | 11 | 20 | 13 | 63 | 7.7 |
| MULTIPLE MAJOR BODY PARTS | 6 | 13 | 12 | 12 | 10 | 53 | 6.5 |
| ARM(S)(ABOVE WRIST) | 8 | 6 | 6 | 13 | 8 | 41 | 5.0 |
| FACE | 3 | 9 | 5 | 4 | 1 | 22 | 2.7 |
| EYE(S)-OPTIC NERVE,VISION | 3 | 4 | 2 | 5 | 5 | 19 | 2.3 |
| ALL OTHER PARTS, UNS | 1 | 2 | 4 | 9 | 6 | 22 | 2.7 |
| Total | 139 | 166 | 146 | 211 | 158 | 820 | 100.0 |

## 4.3 Source of Injury

| LOST-TIME CLAIMS ALBERTA: 1994 TO 1998 | OCCURRENCE YEAR | | | | | Total | |
|---|---|---|---|---|---|---|---|
| | 94 | 95 | 96 | 97 | 98 | Number | Percent |
| SOURCE-UNS | 35 | 35 | 47 | 46 | 35 | 198 | 24.1 |
| METAL ITEMS-NEC | | | | | | | |
| PIPE AND FITTINGS | 19 | 21 | 17 | 31 | 19 | 107 | 13.0 |
| STRUCTURAL METAL | 9 | 6 | 5 | 7 | 5 | 32 | 3.9 |
| OTHER SOURCE | 4 | 7 | 4 | 3 | 2 | 20 | 2.4 |
| SUBTOTAL | 32 | 34 | 26 | 41 | 26 | 159 | 19.4 |
| WORKING SURFACES | | | | | | | |
| GROUND (OUTDOORS) | 9 | 4 | 4 | 13 | 11 | 41 | 5.0 |
| OTHER SOURCE | 13 | 11 | 8 | 13 | 9 | 54 | 6.6 |
| SUBTOTAL | 22 | 15 | 12 | 26 | 20 | 95 | 11.6 |
| VEHICLES | | | | | | | |
| HIGHWAY VEHICLES (POWERED) | 12 | 29 | 8 | 15 | 10 | 74 | 9.0 |
| OTHER SOURCE | . | 1 | 1 | 1 | 3 | 6 | 0.7 |
| SUBTOTAL | 12 | 30 | 9 | 16 | 13 | 80 | 9.8 |
| BODILY MOTION | 8 | 9 | 13 | 18 | 15 | 63 | 7.7 |
| HANDTOOLS-UNPOWERED | 9 | 15 | 7 | 15 | 11 | 57 | 7.0 |
| HOISTING APPARATUS | 7 | 6 | 2 | 5 | . | 20 | 2.4 |
| MACHINES | 1 | 2 | 4 | 6 | 7 | 20 | 2.4 |
| ALL OTHER SOURCES | 13 | 20 | 26 | 38 | 31 | 128 | 15.6 |
| Total | 139 | 166 | 146 | 211 | 158 | 820 | 100.0 |

## 4.4 Type of Event

| LOST-TIME CLAIMS ALBERTA: 1994 TO 1998 | OCCURRENCE YEAR | | | | | Total | |
|---|---|---|---|---|---|---|---|
| | 94 | 95 | 96 | 97 | 98 | Number | Percent |
| STRUCK BY | | | | | | | |
| STRUCK BY FLYING OBJECT | . | 6 | 23 | 28 | 13 | 70 | 8.5 |
| STRUCK BY FALL OBJ DURING HANDLING | 5 | 3 | . | 7 | 5 | 20 | 2.4 |
| OTHER TYPE | 22 | 26 | 11 | 20 | 11 | 90 | 11.0 |
| SUBTOTAL | 27 | 35 | 34 | 55 | 29 | 180 | 22.0 |
| CAUGHT IN, UNDER OR BETWEEN | | | | | | | |
| CAUGHT BETW MOVING,STATIONARY OBJECT | 12 | 5 | . | . | . | 17 | 2.1 |
| OTHER TYPE | 13 | 21 | 17 | 31 | 22 | 104 | 12.7 |
| SUBTOTAL | 25 | 26 | 17 | 31 | 22 | 121 | 14.8 |
| OVEREXERTION | | | | | | | |
| LIFTING OBJECTS | 11 | 13 | 8 | 12 | 11 | 55 | 6.7 |
| PULLING/PUSHING OBJECTS | 5 | 1 | 3 | 5 | 5 | 19 | 2.3 |
| OTHER TYPE | 6 | 11 | 7 | 10 | 4 | 38 | 4.6 |
| SUBTOTAL | 22 | 25 | 18 | 27 | 20 | 112 | 13.7 |
| FALL FROM ELEVATION | 13 | 8 | 10 | 19 | 18 | 68 | 8.3 |
| BODILY REACTION | | | | | | | |
| REACTION FROM VOLUNTARY MOTION | 3 | 4 | 8 | 6 | 6 | 27 | 3.3 |
| REACTION FROM INVOLUNTARY MOTION | 5 | 5 | 3 | 6 | 7 | 26 | 3.2 |
| OTHER TYPE | . | . | 2 | 7 | 3 | 12 | 1.5 |
| SUBTOTAL | 8 | 9 | 13 | 19 | 16 | 65 | 7.9 |
| VEHICLE INCIDENTS | 10 | 25 | 4 | 13 | 11 | 63 | 7.7 |
| FALL ON SAME LEVEL | 9 | 10 | 12 | 8 | 7 | 46 | 5.6 |
| ALL OTHER TYPES, UNS | 25 | 28 | 38 | 39 | 35 | 165 | 20.1 |
| Total | 139 | 166 | 146 | 211 | 158 | 820 | 100.0 |

## 4.5 Duration of Disability

| LOST-TIME CLAIMS ALBERTA: 1994 TO 1998 | OCCURRENCE YEAR | | | | | Total | |
|---|---|---|---|---|---|---|---|
| | 94 | 95 | 96 | 97 | 98 | Number | Percent |
| 01 - 05 DAYS LOST | 17 | 20 | 17 | 32 | 30 | 116 | 14.1 |
| 06 - 10 DAYS LOST | 15 | 13 | 13 | 31 | 10 | 82 | 10.0 |
| 11 - 15 DAYS LOST | 13 | 11 | 14 | 17 | 13 | 68 | 8.3 |
| 16 - 20 DAYS LOST | 4 | 24 | 11 | 15 | 9 | 63 | 7.7 |
| 21 - 30 DAYS LOST | 15 | 17 | 13 | 19 | 12 | 76 | 9.3 |
| 31 - 40 DAYS LOST | 12 | 10 | 10 | 9 | 8 | 49 | 6.0 |
| 41 - 50 DAYS LOST | 5 | 11 | 8 | 6 | 13 | 43 | 5.2 |
| 51 OR MORE DAYS LOST | 55 | 47 | 51 | 66 | 49 | 268 | 32.7 |
| DAYS LOST-UNSPECIFIED, 0 | 3 | 13 | 9 | 16 | 14 | 55 | 6.7 |
| Total | 139 | 166 | 146 | 211 | 158 | 820 | 100.0 |

# 5. Characteristics of The Injured Worker

## 5.1 Occupation of Injured Worker

| LOST-TIME CLAIMS ALBERTA: 1994 TO 1998 | OCCURRENCE YEAR | | | | | Total | |
|---|---|---|---|---|---|---|---|
| | 94 | 95 | 96 | 97 | 98 | Number | Percent |
| OIL & GAS FIELD, MINING | | | | | | | |
| OIL & GAS, MINING-NEC | 66 | 56 | 60 | 85 | 60 | 327 | 39.9 |
| ROTARY WELL DRILLING | 43 | 76 | 49 | 75 | 60 | 303 | 37.0 |
| LABOR-OIL & GAS, MINING | . | 4 | 6 | 13 | 9 | 32 | 3.9 |
| FOREMEN-OIL & GAS, MINING | 3 | 5 | 5 | 5 | 3 | 21 | 2.6 |
| OTHER OCCUPATION | . | 1 | . | 1 | . | 2 | 0.2 |
| SUBTOTAL | 112 | 142 | 120 | 179 | 132 | 685 | 83.5 |
| MACHINING | | | | | | | |
| WELDING & FLAME CUTTING | 1 | 1 | 2 | 10 | 4 | 18 | 2.2 |
| OTHER OCCUPATION | 1 | 1 | . | 1 | . | 3 | 0.4 |
| SUBTOTAL | 2 | 2 | 2 | 11 | 4 | 21 | 2.6 |
| ALL OTHER OCCUPATIONS, UNS | 25 | 22 | 24 | 21 | 22 | 114 | 13.9 |
| Total | 139 | 166 | 146 | 211 | 158 | 820 | 100.0 |

## 5.2 Age of Injured Worker

| LOST-TIME CLAIMS ALBERTA: 1994 TO 1998 | OCCURRENCE YEAR | | | | | Total | |
|---|---|---|---|---|---|---|---|
| | 94 | 95 | 96 | 97 | 98 | Number | Percent |
| 15-19 YEARS | 10 | 8 | 6 | 14 | 7 | 45 | 5.5 |
| 20-24 YEARS | 40 | 40 | 41 | 65 | 41 | 227 | 27.7 |
| 25-34 YEARS | 65 | 90 | 67 | 93 | 65 | 380 | 46.3 |
| 35-44 YEARS | 20 | 20 | 27 | 34 | 37 | 138 | 16.8 |
| 45-54 YEARS | 2 | 4 | 4 | 3 | 7 | 20 | 2.4 |
| 55-64 YEARS | . | . | 1 | 2 | 1 | 4 | 0.5 |
| AGE-UNSPECIFIED | 2 | 4 | . | . | . | 6 | 0.7 |
| Total | 139 | 166 | 146 | 211 | 158 | 820 | 100.0 |

## 5.3 Length of Time Employed

| LOST-TIME CLAIMS ALBERTA: 1994 TO 1998 | OCCURRENCE YEAR | | | | | Total | |
|---|---|---|---|---|---|---|---|
| | 94 | 95 | 96 | 97 | 98 | Number | Percent |
| A. LESS THAN 1 MONTH | 29 | 27 | 34 | 43 | 14 | 147 | 17.9 |
| B. 1 MONTH TO < 6 MONTHS | 57 | 48 | 30 | 53 | 30 | 218 | 26.6 |
| C. 6 MONTHS TO < 1 YEAR | 19 | 19 | 14 | 19 | 20 | 91 | 11.1 |
| D. 1 YEAR OR MORE | 14 | 44 | 26 | 28 | 29 | 141 | 17.2 |
| E. TIME-UNSPECIFIED | 20 | 28 | 42 | 68 | 65 | 223 | 27.2 |
| Total | 139 | 166 | 146 | 211 | 158 | 820 | 100.0 |

## 5.4 Gender of Injured Worker

| LOST-TIME CLAIMS ALBERTA: 1994 TO 1998 | OCCURRENCE YEAR | | | | | Total | |
|---|---|---|---|---|---|---|---|
| | 94 | 95 | 96 | 97 | 98 | Number | Percent |
| MALE | 136 | 162 | 142 | 206 | 157 | 803 | 97.9 |
| GENDER-UNSPECIFIED | 3 | 3 | 3 | 5 | . | 14 | 1.7 |
| FEMALE | . | 1 | 1 | . | 1 | 3 | 0.4 |
| Total | 139 | 166 | 146 | 211 | 158 | 820 | 100.0 |

## 6. Number of Employers that Received/Renewed a CoR in 1998

| | Certified Employers | Cert. & Uncert. (# of Accounts) | % Certified |
|---|---|---|---|
| **Sub-Sector # 3**<br>Industry 09903-Well Servicing with Service Rigs | 11 | 112 | 2.2% |
| **UPSTREAM OIL & GAS SECTOR** | **119** | **7,205** | **1.7%** |

## 7. Cost of Claims, Payroll & Premiums

| | Occurrence Year | | | | |
|---|---|---|---|---|---|
| | **1994** | **1995** | **1996** | **1997** | **1998** |
| **Transaction Year** | | | | | |
| **1994** | $894,998 | | | | |
| **1995** | $609,792 | $1,561,527 | | | |
| **1996** | $437,750 | $815,586 | $1,130,794 | | |
| **1997** | $483,591 | $291,046 | $790,040 | $1,236,490 | |
| **1998** | $373,740 | $506,620 | $1,248,353 | $810,332 | $1,677,073 |
| **Total Cost** | $2,799,871 | $3,174,779 | $3,169,187 | $2,046,822 | $1,677,073 |
| **Total Payroll** | $123,648,845 | $129,009,234 | $154,565,894 | $195,625,737 | $182,534,692 |
| **Total Premiums** | $9,138,204 | $7,883,893 | $7,731,686 | $10,340,671 | $5,354,330 |

The above costs of claims, payroll and premiums are for the five year period 1994 through 1998. The data is as at July, 1999.

The claim cost amount reflect only paid costs on claims which have occurred in the five year period. These paid cost are tracked by year of occurrence and year that the cost were transacted.

The payroll have been totaled for each year. The premiums is the total of employer's premiums paid for each year.

## 8. Occupational Fatalities

An occupational fatality is the death of a worker which results from a work-related incident or exposure. Alberta Labour classifies occupational fatalities into three general types: motor vehicle incident, workplace incident and occupational diseases. Each is described in detail below.

*Motor Vehicle Incident*
Motor vehicle incident typically involve highway vehicles operating on public roads in which the fatally injured worker was either the driver or a passenger. This category also includes fatalities involving air plane crashes, train crashes, helicopter crashes. etc.

*Workplace Incident*
Fatal workplace incidents consists of cases in which the worker dies at a work site, or as a result of injuries sustained at a work site. It is this type of fatality that Alberta Labour may be responsible for investigating.

*Occupational Diseases*
Occupational disease fatalities consist mostly of recognized occupational disease, that is, disease known to be primarily or exclusively work-related (e.g. asbestosis, black lung disease). Occupational diseases are frequently diagnosed many years after the initial or crucial exposure to the toxic substance, and in such cases it is very difficult to determine when the fatal exposure occurred. Thus, the occupational disease category, should not be interpreted to reflect present work site hazardous conditions or exposures.

Each year the Workers' Compensation Board (WCB) accepts some occupational fatality claims for compensation. Claims accepted in a particular year does not imply the fatalities occurred in that year.

**Description of Well Servicing with Service Rigs**
**Including Power Swivels Fatalities**
**Accepted by the WCB**
**Alberta, 1992-1998**

| Year | Occupational Disease | | Motor Vehicle incident | | Workplace Incident | | Total | |
|---|---|---|---|---|---|---|---|---|
| | N | % | N | % | N | % | N | % |
| 1992 | 0 | 0.0 | 0 | 0.0 | 1 | 100.0 | 1 | 100 |
| 1993 | 0 | 0.0 | 0 | 0.0 | 1 | 100.0 | 1 | 100 |
| 1994 | 0 | 0.0 | 0 | 0.0 | 0 | 0 | 0 | 100 |
| 1995 | 0 | 0.0 | 5 | 71.4 | 2 | 28.6 | 7 | 100 |
| 1996 | 0 | 0.0 | 0 | 0.0 | 2 | 100.0 | 2 | 100 |
| 1997 | 0 | 0.0 | 1 | 100.0 | 0 | 0.0 | 1 | 100 |
| 1998 | 0 | 0.0 | 1 | 33.3 | 2 | 66.7 | 3 | 100 |
| Total | 0 | 0.0 | 7 | 46.7 | 8 | 53.3 | 15 | 100 |

## 9. OHS Investigated Occupational Fatalities: 1993-1998

| | | | |
|---|---|---|---|
| YEAR: | 1993 | FILE: | 0775 |
| OCCUPATION: | Derrickman | AGE: | 28 |
| INDUSTRY: | Well Servicing with Service Rigs | | |
| EXPERIENCE: | 3 years | | |

DESCRIPTION: A worker was fatally struck by a service rig while in the process of moving from one lease location to another. The rig had travelled up two hills, and was in the process of climbing the third when the rig began slipping in reverse down the hill. The rig travelled in reverse down the hill and into a ditch where it struck and drove over the worker.

| | | | |
|---|---|---|---|
| YEAR: | 1995 | FILE: | 0811 |
| OCCUPATION: | Roughneck | AGE: | 20 |
| INDUSTRY: | Well Servicing with Service Rigs | | |
| EXPERIENCE: | 4 months | | |

DESCRIPTION: At a recently drilled gas well, the service rig workers were in the final stages of well completion, which was to remove the blow out prevention unit (BOP) and prepare installation of the master valve. When the hoist line was raised, the sling tightened up against the pipe nipple and pulled the pipe nipple out of the THS. The pressure in the well head propelled the pipe nipple away from the THS and struck the worker who was in the path of travel.

| | | | |
|---|---|---|---|
| YEAR: | 1995 | FILE: | 0826 |
| OCCUPATION: | Rig Repairer | AGE: | 25 |
| INDUSTRY: | Servicing of Gas and Oil Wells by means of Service Rigs | | |
| EXPERIENCE: | | | |

DESCRIPTION: A well servicing company was contracted by an oil company to rework a well that had been shut-in for six months. The crew prepared the rig matting and the rig was centered over the well. When the rig up was completed, reverse circulation (pumping down casing) was tried and was unsuccessful due to wax build up. The crew decided to back off the rod string by using two 0.91 m. pipe wrenches across from each other on the polish rod clamp. There were two workers on each wrench, one pulling and the other pushing. About 10 to 15 anti-clockwise turns of torque were applied to the rod string. Control on the wrenches was lost and one of the wrenches flung around clockwise fatally injuring one worker and knocking the second worker unconscious.

| | | | |
|---|---|---|---|
| YEAR: | 1996 | FILE: | 0848 |
| OCCUPATION: | Roughneck | AGE: | 24 |
| INDUSTRY: | Well Servicing with Service Rigs | | |
| EXPERIENCE: | 1.75 years | | |

DESCRIPTION: A service rig was swabbing the contents of an oil well located near Taber, Alberta. The work was being performed as a part of a completion program to bring the well into production. The oil company had contacted the consultant in charge of the job site and asked that swabbing be stopped. They asked that a sample of the produced fluids be take and that tubing be removed from the well so they could seal off the zone producing water. The roughneck took a sample of the produced fluids at the rig tank entry hatch and was later seen standing between the rig tank and the rig pump. The rest of the crew removed the swabbing

equipment from the service rig. It is unknown why or when, but the roughneck who took the sample returned and entered the rig tank. As the crew were pulling the tubing, the rig manager found the roughneck who had taken the sample floating in the produced fluids in the tank. The roughneck was rescued by the crew and given two man CPR until they were relieved by ambulance attendants. He was transported to the hospital where he was pronounced dead from drowning.

| | | | |
|---|---|---|---|
| YEAR: | 1998 | FILE: | 0887 |
| OCCUPATION: | Derrickman | AGE: | 33 |
| INDUSTRY: | Servicing of Gas and Oil Wells by Means of Service Rigs | | |
| EXPERIENCE: | Unknown | | |

DESCRIPTION: The worker was in the process of rigging out the tubing board of a service rig. He had connected his fall arrest line and disconnected his positioning lanyard. The fingers on the tubing board had been spread apart and the worker was standing on the diving board. As he turned, the worker slipped and fell through the hole left by the fingers. The worker fell approximately 4 metres until the fall arrest cable tightened. When the cable tightened it separated and the worker fell to the ground. The worker died as a result of injuries sustained in the fall.

| | | | |
|---|---|---|---|
| YEAR: | 1998 | FILE: | 0888 |
| OCCUPATION: | Derrickhand | AGE: | 26 |
| INDUSTRY: | Servicing of Gas and Oil Wells | | |
| EXPERIENCE: | 4 years | | |

DESCRIPTION: A service rig crew was inserting the last joint of pipe into a well. The derrickhand was working on the tubing board, wearing a harness attached to a 1.8 m (6 feet) working lanyard, anchored to the tubing board rail. After the derrickhand positioned the joint of pipe, the operator instructed him to "rig out" the tubing board (in preparation to dismantle the rig).

In the process of rigging out, the derrickhand transferred from his working lanyard to the retractable life line, used for going up and down the derrick ladder. The retractable life line was anchored to the crown of the derrick, above the ladder. He was working on the tubing board, therefore the retractable life line was across the path of the travelling blocks.

The blocks were still in motion and caught the retractable life line, pulling the derrickhand off the tubing board. The blocks sheared the line and he fell to the ground and sustained fatal injuries.

# Appendix A: Terms, Definitions, and Formulas

**Lost-Time Claim**

A lost-time claim (LTC) is a claim for an occupational injury or disease which disables the worker beyond the day of injury. Included are claims for which wages compensation are paid, permanent disability claims, fatalities, and cases in which the injured worker is assigned light duties or other modified work.

**Person-Years**

Person-year estimates are calculated from wage and payroll data provided by account holders to the WCB. Alberta Labour uses these data to estimate. An average industry wage, and uses the average industry wage and employer payroll data to estimate person-years foe each employer and each industry. One person-year ie equivalent to one full-time worker working for one year, and can be assumed to equal 2,000 hours worked.

**LTC Rate**

The lost-time claim (LTC) rate is calculated by dividing the number of lost-time claims by the person-year estimate, and multiplying the result by 100. The LTC rate represent the probability or risk of disabling injury or disease to a worker during a period of one year's work. Comparisons of LTC rates between industries, or between years, can be used to indicate increases, decreases, or differences in this risk.

$$\text{LTC Rate} = \frac{\text{Number of LTCs X 100}}{\text{Estimated Person-years}}$$

**Duration (Days Lost)**

The duration of disability is the number of days following the injury or disease for which the worker was disabled, and unable to perform normal work duties. This information is obtained for this report from data on compensation days paid on each claim from WCB. Alberta Labour obtains these data on March 31 of the year following the claim year, and does not update the information, even though many injured workers continue to be disabled beyond this date. As a result, the duration information reported here underestimates the true impact of lost-time injury and disease.

**Duration Rate**

The duration rate is calculated by dividing the number of work days lost (disability days) by the person-year estimate, and multiplying by 100. The result is expressed as "days lost per 100 person-years worked", and indicates, in part, the economic impact of occupational injury and disease. Duration rates are not recommended as reliable indicators of full economic cost. In addition, readers are warned that duration rates are highly unstable when based on only a few lost-time claims; it is recommended that the duration rate not be calculated based upon fewer than 30 lost-time claims.

$$\text{Duration Rate} = \frac{\text{Disability Days X 100}}{\text{Estimated Person-Years}}$$

**WCB Accepted Fatality**

An occupational fatality is the death of a worker which result from a work-related incident or exposure and which has been accepted by the WCB for compensation. A fatality is counted in the year it is accepted.

**NEC**

Means "Not Elsewhere Classified"

**UNS**

Means "Unspecified"

## Appendix B: Upstream Oil and Gas 1998 Industry Codes

**Sub-Sector 1:** **Exploration**
Industries:
09200~Seismic Geophysical/Mineral Exploration
09201~Shot Hole Drilling

**Sub-Sector 2:** **Oilfield Maintenance and Construction**
Industries:
06304~Oilfield Construction and/or Maintenance

**Sub-Sector 3:** **Well Servicing With Service Rigs**
Industries:
09903~Well servicing with Service Rigs including Power Swivels

**Sub-Sector 4:** **Drilling of Oil and gas Wells**
Industries:
09600~Drilling of Oil & Gas Wells

**Sub-Sector 5:** **Downhole & Other Oilfield Services**
Industries
06305~Field Production Operators
06306~Vacuum Removal of Waste
09900~Mud Logging
09902~Pressure Cleaning Services
09904~Rathole Drilling and Rig Anchoring
09911~Oilfield Downhole Services
09915~Well Casing Services
09921~Servicing Christmas Trees On Oil Wells
09927~Liquid Waste Treatment & Disposal

**Sub-Sector 6:** **Tar Sands**
Industries:
06600~Mining & Processing of Bituminous Sand
06601~Research/Development, Oil Sands and Heavy Oil Recovery

**Sub-Sector 7:** **Oil & Gas Exploration/Development**
Industries:
06300~Oil and Gas Exploration & Development-Upstream Operations

**Sub-Sector 8:** **Oilfield Trucking Services**
Industries:
50720~Oilfield Trucking Services